Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Application of Kuiper Systems LLC for	)	File No. SAT-LOA-20190704-00057
Authority to Launch and Operate a	)	
Non-geostationary Satellite Orbit System on	)	Call Sign S3051
Ka-band Frequencies	)	

COMMENTS

Pursuant to Section 25.154(a) of the Commission's rules,[1] Hughes Network Systems, LLC, Intelsat License LLC, and Inmarsat, Inc. (collectively, "GSO Satellite Operators") submit these comments regarding the above-captioned application ("Application") of Kuiper Systems LLC (together with its affiliates, "Amazon") to launch and operate a Ka-band non-geostationary satellite orbit ("NGSO") system.[2] As Amazon seeks to launch an ambitious fleet of 3,236 Ka-band NGSO satellites that may impact existing geostationary satellite orbit ("GSO") systems, the Commission should ensure sufficient safeguards to protect GSO operations from harmful interference.

As an initial matter, to ensure interference protection of GSO operations, Amazon is required under Section 25.146 of the Commission's rules to: (i) certify compliance with applicable per-system and aggregate EPFD limits; and (ii) obtain a favorable or qualified favorable International Telecommunication Union ("ITU") finding that confirms EPFD

[1] *See* 47 C.F.R. § 25.154(a).

[2] *See* Amazon, Application, IBFS File No. SAT-LOA-20190704-00057 (July 4, 2019); *see also Satellite Policy Branch Information: Space Station Applications Accepted for Filing*, Public Notice, Report No. SAT-01416 (Sept. 27, 2019).

compliance prior to initiation of service.[3] A qualified favorable finding is given based on a commitment of compliance by the responsible administration with the limits specified under Nos. 22.5C, 22.5D and 22.5F. However, despite assurances that its proposed system is "fully compliant" with applicable per-system and aggregate EPFD limits,[4] Amazon has not provided sufficient information, such as data input files used to validate EPFD compliance and information on assumed worst-case geometries, to allow an independent verification of such compliance.

Although the Commission has required other NGSO applicants to submit data input files used for ITU validation of EPFD compliance prior to initiation of service,[5] the GSO Satellite Operators urge the Commission to require submission of such information prior to grant of the Application to allow other parties to verify Amazon's self-certification of EPFD compliance. Allowing submission of data input files anytime prior to initiation of service creates uncertainty for GSO operators, who cannot verify EPFD compliance until such dwilata files are available.

Additionally, multiple ITU filings have been submitted for Amazon's proposed system, thus raising concerns that the ITU will not accurately evaluate "per-system" EPFD limits because the analysis will be performed on each individual filing rather than the entire system. Amazon's technical showing is unclear as to whether its EPFD analysis is based on subsets of its satellite constellation in different launch phases and in each of three orbital shells or on its entire proposed system.[6] Consequently, the Commission should require Amazon to confirm that its

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[3] *See* 47 C.F.R. § 25.146(a), (c).

[4] *See* Application, Technical Appendix, at B-1.

[5] *See, e.g., LeoSat MA, Inc.*, Order and Declaratory Ruling, 33 FCC Rcd 11486, ¶ 22(m) (2018) ("*LeoSat*"); *Kepler Communications Inc.,* Order and Declaratory Ruling, 33 FCC Rcd 11453, ¶ 26 (2018) ("*Kepler*").

[6] *See* Application, Technical Appendix, at 2, B-2, B-11.

EPFD analysis addresses the entire composite system, rather than individual components, as well as to submit the necessary information to allow independent verification of EPFD compliance for the entire composite system.

Furthermore, GSO Satellite Operators are concerned about aggregate interference from NGSO systems. The fairly large number of ITU filings recently submitted by the United States for just a few NGSO systems raises the question of how these NGSO systems will ensure compliance with aggregate EPFD limits.[7] Although the Commission typically imposes a license condition requiring NGSO licensees to "cooperate" with other NGSO licensees to ensure aggregate EPFD compliance, such condition offers no indication as to when such cooperation must occur and therefore is insufficient to allow GSO operators to verify compliance in a timely manner. In analogous situations where GSO operations are allowed in the 18.8-19.3 GHz and 28.6-29.1 GHz bands on a secondary basis with respect to NGSO systems, the Commission has imposed concrete requirements, such as requiring a GSO operator, at least 60 days prior to launch of each U.S.-licensed NGSO system, to: (i) complete coordination with the NGSO operator(s); or (ii) obtain Commission approval of a license modification that includes a detailed technical showing of interference protection provided to the NGSO system.[8] Accordingly, the Commission should impose comparable requirements here. Specifically, the Commission should require Amazon, at least 60 days prior to launch of its system, to: (i) complete coordination with

[7] *See, e.g.,* Application, Technical Appendix at 27 (referencing three ITU filings for Amazon's proposed system under USASAT-NGSO-8A, USASAT-NGSO-8B, and USASAT-NGSO-8C networks); Letters from Jose Albuquerque, International Bureau, FCC, to Director, Radiocommunication Bureau, ITU (Oct. 7, 2019) (submitting coordination requests for 20 ITU network filings for SpaceX's NGSO system), *available at* https://www.itu.int/ITU-R/space/asreceived/Publication/AsReceived.

[8] *See, e.g.,* Hughes Network Systems, LLC, *Stamp Grant,* File No. SAT-MOD-20190212-00011, Attachment to Modification Grant at 2 (June 13, 2019).

other NGSO operators to ensure compliance with aggregate EPFD limits; or (ii) submit a detailed showing of compliance with aggregate EPFD limits.

Based upon the foregoing, the GSO Satellite Operators urge the Commission to impose sufficient safeguards to ensure interference protection of incumbent GSO operations. At a minimum, these safeguards should include requiring Amazon to: (i) confirm that its EPFD analysis addresses the entire system, rather than individual components; (ii) submit data input files and other assumptions used, in order to allow independent verification of EPFD compliance for the entire system prior to any grant of the Application; and (iii) at least 60 days prior to launch of its system, complete coordination with other NGSO operators to ensure aggregate EPFD compliance or submit a detailed showing of aggregate EPFD compliance.

Respectfully submitted,

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October 28, 2019

CERTIFICATE OF SERVICE

I, Theresa Rollins, hereby certify under penalty of perjury that the foregoing Comments was served this 28th day of October, 2019, by depositing a true copy thereof with the United States Postal Service, first class postage pre-paid, addressed to:

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